

Fill System 1000 With Distilled Water

Place the System 1000 over a floor drain, then rotate the System 1000 drain valve 90° clockwise, to the open position. [Figure 3]. Remove the filport plug [Figure 2]. After all of the water has drained out rotate the drain valve 90° counter-clockwise to the closed position [Figure 3]. With the System 1000 securely attached to an I.V. pole and disposable set removed, fill water tank with 750 ml's of distilled water. Replace filport plug.

WARNING: *Never fill System 1000 with a disposable set in place*

Figure 2: Location of filport and filport plug

Install TEMP CHECK Thermometer

NOTE: Check calibration due date on back of TEMP CHECK. If calibration is past due, return to SIMS LEVEL1 for service before proceeding.

Install the TEMP CHECK in the System 1000 by placing the bottom tube into the bottom socket (#1), press the top tube into the middle interlock. Then close the top socket (#2). Locate the auxiliary outlet on bottom of the System 1000 and plug in the TEMP CHECK power cord. [Figure 4]

Temperature Verification

Power on the System 1000 and allow 15 minutes for temperature to stabilize.

NOTE: It is important to perform the following two steps in their respective order for proper results.

NOTE: The System 1000 will only show 2 digits.

1. Confirm the TEMP CHECK indicates a temperature between 41.0 and 42.0 °C. If the TEMP CHECK does not indicate a temperature between 41.0 and 42.0°C the Cir. H2O temperature needs to be calibrated. See CALIBRATE WATER TEMPERATURE before proceeding to step 2.
2. Confirm that the System 1000 display is the same as the TEMP CHECK display temperature. If the System 1000 display equals the TEMP CHECK display and the indicated temperature is between 41.0 and 42.0°C, the Cir. H2O temperature and the System 1000 display are within calibration and do not need adjustment.

Figure 3: Back view of System 1000**Calibrate Water Temperature (Step 1)**

If the TEMP CHECK does not indicate a temperature between 41.0 and 42.0°C , the Cir. H₂O temperature needs to be calibrated. Using a Phillips head screwdriver Remove the 18 screws from the back of the System 1000 and remove cover.

CAUTION: Avoid contact with any internal components not specified in this procedure.

CAUTION: You must support the System 1000 while the back is removed. You will not be able to attach it to an I.V. pole.

Locate the "TEMP"(R9) potentiometer near the bottom of the printed circuit board. [FIGURE 6] Using a 1/8 inch flat head screwdriver adjust the TEMP potentiometer accordingly until the TEMP CHECK indicates a temperature of $41.7 \pm 0.1^{\circ}\text{C}$.

Turning the "TEMP" potentiometer Clockwise will raise the water temperature.

Turning the "TEMP" potentiometer Counter Clockwise will lower the water temperature.

A 1/4 turn on the "TEMP" potentiometer is approximately equal to a 0.3°C change in the Cir. H₂O temperature. Never adjust the TEMP potentiometer more than 1/4 turn at a time and always allow 5 minutes minimum between adjustments.

When the TEMP CHECK indicates a temperature of $41.7 \pm 0.1^{\circ}\text{C}$, the temperature has been properly set. Proceed with STEP 2.

Calibrate System 1000 Display (Step 2)

If the System 1000 display does not equal the TEMP CHECK display the System 1000 display needs to be calibrated.

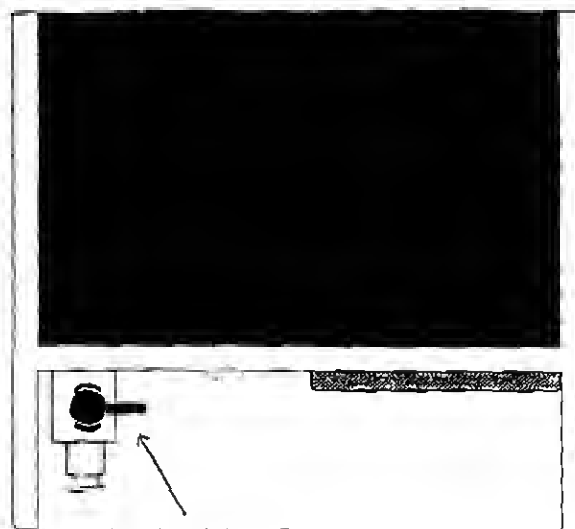
If the System 1000 cover has not been removed yet, using a #1 Phillips head screwdriver remove the 18 screws from the back of the System 1000 and remove the cover.

CAUTION: Avoid contact with any internal components not specified in this procedure.

CAUTION: You must support the System 1000 while the back is removed. You will not be able to attach it to an I.V. pole.

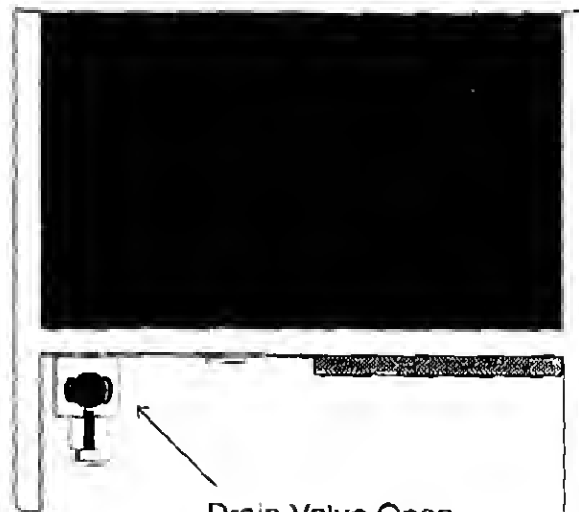
Locate the "DISPLAY" potentiometer near the top left corner of the PRINTED CIRCUIT BOARD. [FIGURE 6]

Using a 1/8 inch flat head screwdriver adjust the potentiometer accordingly until the System 1000 display equals the TEMP CHECK display $\pm 0.1^{\circ}\text{C}$.

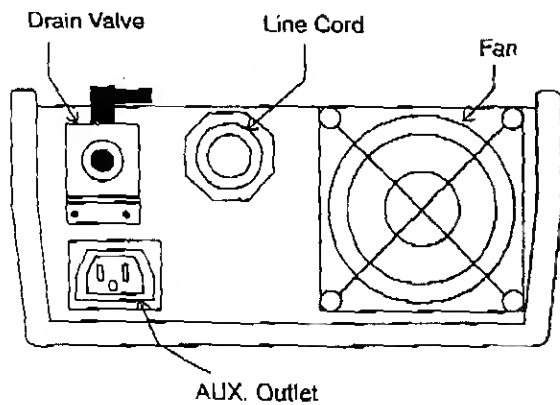


Drain Valve Closed

Back View of H-1000



Drain Valve Open



Bottom View
H-1000

Turning the "DISPLAY" potentiometer Clockwise will raise the System 1000 DISPLAY reading.

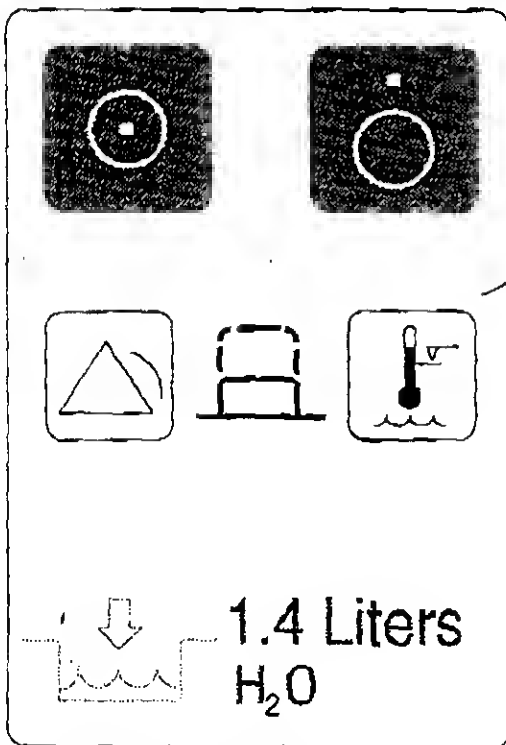
Turning the "DISPLAY" potentiometer Counter Clockwise will lower the System 1000 DISPLAY reading.

Figure 4: Bottom of System 1000

When the System 1000 display equals the TEMP CHECK display $\pm .1^{\circ}\text{C}$ and the indicated temperature is between 41.0 and 42.0°C the Cir. H₂O temperature and the display have been calibrated correctly.

Testing the Over Temp Set point

1. Before testing the Overtemp setpoint, the System 1000 must be running and stable at the operating temperature.
2. Locate the Over temp test button on the front panel [Figure 5]. Press and then release the button. The over temperature alarm should activate. The System 1000 display should indicate a temperature of 44.9°C .
3. Observe the green OPERATING LED goes out and the red OVER TEMPERATURE LED turns on.
4. The audio alarm will sound and the water will stop circulating.
5. If the over temperature alarm activates at 44.9°C , the activation point is correct and does not need adjustment.
6. If the OVER TEMPERATURE ALARM does not activate at 44.9°C , the activation point needs to be calibrated.
7. To calibrate see the Calibrate Over Temperature Alarm Activation Point section later in this manual.



Overtemp Test
Button

Figure 5: Front Panel

Note: When the Overtemp alarm test button, is pressed the alarm will latch in the alarm mode you must power the System 1000 off, then power the System 1000 back on.

Calibrate Over Temperature Alarm Activation Point

If the System 1000 cover has not been removed yet, using a #1 Phillips head screwdriver remove 18 screws from the back of the System 1000 and remove the cover.

CAUTION: Avoid contact with any internal components not specified in this procedure.

CAUTION: You must support the System 1000 while the back is removed. You will not be able to attach it to an I.V. pole

Locate the "DISPLAY" potentiometer near the top right corner of the PRINTED CIRCUIT BOARD. [FIGURE 6] Using an 1/8 inch flat head screwdriver adjust the "DISPLAY" potentiometer clockwise until the display reads 44.9. If the alarm

is not sounding turn the "O TEMP" potentiometer counterclockwise until the alarm activates. **RE-CALIBRATE** the display once the activation point is set.

If the alarm activates before the display reads 44.9 turn down the "DISPLAY" potentiometer. Power off the System 1000 then power back on, to clear the alarm. Turn the "O TEMP" potentiometer clockwise 1/8 th of a turn. Now turn the "DISPLAY" potentiometer clockwise again and confirm that the overtemp alarm activates at 44.9. Repeat this process until the alarm activates at 44.9. Re-calibrate the display once the activation point is set.

After making adjustments to the "O TEMP" potentiometer, perform the following steps.

1. Re-calibrate the display.

REPLACE COVER: Power off the System 1000, remove TEMP CHECK, replace cover with 18 screws, replace black label on auxiliary outlet

Figure 6: System 1000 Circuit Board

